CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 78-90

NPDES NO. CA0038571

WASTE DISCHARGE REQUIREMENTS FOR:

CITY OF REDWOOD CITY AND SOUTH
BAYSIDE SYSTEM AUTHORITY
SAN MATEO COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter Board), finds that:

1. City of Redwood City and the South Bayside System Authority (hereinafter discharger), by application dated May 12, 1978, has applied for waste discharge requirements and a permit to discharge wastes under the National Pollutant Discharge Elimination System.

2. Redwood City General Improvement District No. 1-64 presently discharges approximately 200,000 gallons of domestic wastewater into aerated evaporation ponds located on Bair Island near Steinberger Slough and San Francisco Bay. Due to heavy winter rain and extensive development of Redwood Shores, the ponds overflowed into Steinberger Slough, and presently discharge into the South Bayside Systems Authority's deepwater outfall.

3. All wastewater generated by the Cities of San Carlos, Belmont, and Redwood City, Redwood City General Improvement District No. 1-64 (Redwood Shores) and Menlo Park Sanitary District will be treated at the new South Bayside System Authority's treatment facilities now under construction and estimated to be completed late 1980.

4. The discharger proposes to ultimately discharge approximately 450,000 gallons per day of treated wastewater from the ponds into the combined outfall force main, presently used by the Cities of Redwood City, San Carlos and Belmont, with final disposal into the deepwater channel of San Francisco Bay, a water of the United States, at a point approximately 3.5 miles southerly from the San Mateo-Hayward Bridge. The discharge can affect viable shellfish beds in San Francisco Bay, located near the shoreline of Foster City and between the mouths of Steinberger Slough and Redwood Creek. The evaporation ponds will be modified to provide for chlorination and dechlorination. Discharge into the deepwater outfall will occur intermittently at a rate of approximately 500 gallons/min.

5. A Water Quality Control Plan for the San Francisco Bay Basin was adopted by the Board on April 8, 1975. The Basin Plan contains water quality objectives for San Francisco Bay.

6. The beneficial uses of San Francisco Bay are:

   a. Recreation
   b. Fish migration and habitat
   c. Habitat and resting for waterfowl and migratory birds
   d. Industrial, water supply
   e. Esthetic enjoyment
   f. Navigation
   g. Shellfish propagation and harvesting for human consumption.

7. This project is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.

8. The discharger and interested agencies and persons have been notified of the Board's intent to adopt requirements for the proposed discharge and have been provided with the opportunity for a public hearing and the opportunity to submit their written views and recommendations.

9. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code and regulations adopted thereunder, and to the provision of the Federal Water Pollution Control Act, as amended, and regulations and guidelines adopted thereunder, that the discharger shall comply with the following:

A. Prohibitions

1. Discharge of waste at any point where it does not receive a minimum initial dilution of 10:1 is prohibited.

2. There shall be no bypass or overflow of untreated wastewater to waters of the State either at the treatment facilities or from the collection system.

3. The average monthly flow shall not exceed 320,000 gallons per day nor to exceed 9.6 million gallons per calendar month. If, however, the discharger can demonstrate to the satisfaction of the Executive Officer that current discharges are in consistent compliance with these requirements, and that said compliance is expected to continue with additional flow to the system, the Board will consider an increase of the flow to an amount not to exceed a maximum average daily flow of 450,000 gallons per day, nor to exceed 13.5 million gallons per calendar month.

B. Effluent Limitations

1. The discharge of an effluent containing constituents in excess of the following limits is prohibited:

Constituent	Units	30-Day Average	7-Day Average	Maximum Daily	Instantaneous Maximum
a. Settleable matter*	ml/l-hr	0.1			0.2

	Constituent	Units	30-Day Average	7-Day Average	Maximum Daily	Instantaneous Maximum
b.	BOD*	mg/l	10	15	20	
		lbs/day	38		76	
		kg/day	17		34	
c.	Suspended Solids	mg/l	8	12	16	
		lbs/day	30		60	
		kg/day	14		28	
d.	Grease & Oil	mg/l	10		20	
		lbs/day	38		76	
		kg/day	17		34	
e.	Chlorine Residual	mg/l				0.0
f.	Turbidity	JTU	10		20	

*See interim effluent limitation B.7

2. The arithmetic mean of the biochemical oxygen demand (5-day, 20°C) and suspended solids values, by weight, for effluent samples collected in a period of 30 consecutive calendar days shall not exceed 15 percent of the arithmetic mean of the respective values, by weight, for influent samples collected at approximately the same times during the same period (85 percent removal).

3. The pH of the discharge shall not exceed 9.0 or be less than 6.0. Compliance may be demonstrated by a representative sample of the combined outfall effluent, as discharged to the Bay.

4. At some point in the treatment process the waste shall not exceed a median MPN of coliform organisms of 2.2/100 ml as determined from the results of the previous consecutive seven days for which analyses have been completed.

5. In any representative set of samples, the waste as discharged to the combined outfall shall meet the following limit on toxicity:

> The survival of test fishes in 96-hour bioassays of the effluent shall be a 90 percentile value of not less than 50 percent survival. Exceptions to this limitation may be granted and revised toxicity requirements established by the Regional Board, pursuant to public hearing, if the discharger can demonstrate to the satisfaction of the Board that the following conditions are met:
>
> 1. The waste is discharged through a deepwater outfall which achieves rapid and high initial dilution and that the waste is rapidly rendered nonacutely toxic upon discharge, and

2. The toxicants in the waste are nonconservative constituents which are rapidly decayed in the receiving water; or the toxicants in the waste are conservative constituents for which water quality objectives have been established. The Regional Board will, in such cases, establish effluent mass emission rates for such constituents.

6. Representative samples of the effluent shall not exceed the following limits more than the percentage of time indicated:1/

Constituent	Unit of Measurement	50% of time	10% of time
Arsenic	mg/l (kg/day)	0.01 (0.017)	0.02 (0.034)
Cadmium	mg/l (kg/day)	0.02 (0.034)	0.03 (0.051)
Total Chromium	mg/l (kg/day)	0.005 (0.009)	0.01 (0.017)
Copper	mg/l (kg/day)	0.2 (0.34)	0.3 (0.53)
Lead	mg/l (kg/day)	0.1 (0.17)	0.2 (0.34)
Mercury	mg/l (kg/day)	0.001 (0.0017)	0.002 (0.0034)
Nickel	mg/l (kg/day)	0.1 (0.17)	0.2 (0.34)
Silver	mg/l (kg/day)	0.02 (0.034)	0.04 (0.068)
Zinc	mg/l (kg/day)	0.3 (0.51)	0.5 (0.85)
Cyanide	mg/l (kg/day)	0.1 (0.17)	0.2 (0.34)
Phenolic Compounds	mg/l (kg/day)	0.5 (0.85)	1.0 (1.70)
Total Identifiable Chlorinated Hydrocarbons	mg/l (kg/day)2/	0.002 (0.0034)	0.004 (0.0068)

1/These limits are intended to be achieved through secondary treatment, source control and application of pretreatment standards.

2/Total Identifiable Chlorinated Hydrocarbons shall be measured by summing the individual concentrations of DDT, DDD, DDE, aldrin, BHC, chlordane, endrin, heptachlor, lindane, dieldrin, polychlorinated biphenyls, and other identifiable chlorinated hydrocarbons.

7. The following interim effluent limitations shall apply to an unfiltered effluent prior to achieving full compliance with B.1.a and B.1.b:

a. Settleable Solids

Any grab sample	1.0 ml/l-hr, maximum
Any 8-hour composite sample made up of portions collected at hourly intervals in proportion to rate of flow at time of collection	0.5 ml/l-hr, maximum

	30 day average	Maximum
b. BOD	75 mg/l, maximum	
	200 lbs/day	400 lbs/day

C. Receiving Water Limitations

1. The discharge of waste from the combined outfall shall not cause the following conditions to exist in waters of the State at any place.

   a. Floating, suspended, or deposited macroscopic particulate matter or foam;

   b. Bottom deposits or aquatic growths;

   c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

   d. Visible, floating, suspended or deposited oil or other products of petroleum origin;

   e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of waste from the combined outfall shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:

a.	Dissolved oxygen	5.0 mg/l minimum. Annual median - 80% saturation. When natural factors cause lesser concentration(s) than those specified above, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.
b.	Dissolved sulfide	0.1 mg/l maximum
c.	pH	Variation from natural ambient pH by more than 0.2 pH units.
d.	Un-ionized ammonia	0.025 mg/l as N Annual Median 0.4 mg/l as N Maximum

3. The following interim receiving water limitation shall apply prior to achieving full compliance:

   At any place within one foot of the surface of the receiving water the discharge from the combined outfall shall not cause a bacterial quality in excess of those limits prescribed in Section 7958, Title 17 of the California Administrative Code.

D. Provisions

1. Resolution No. 801 adopted by this Board on November 17, 1966 is hereby rescinded.

2. The discharger shall comply with the following time schedule to assure compliance with the specifications of this Order:

   a. Compliance with Effluent Limitations B.1.a (Settleable Matter), B.1.b (BOD), B.1.c (Suspended Solids), B.1.d (Grease & Oil), B.1.f (Turb.), B.2 (BOD), B.4 (Coliform), B.5 (Toxicity), and Receiving Water Limitation C.2.d (Un-ionized Ammonia):

Task	Completion Date	Report of Compliance Due
Status Report		November 15, 1979
Complete Construction	July 1, 1980	July 15, 1980
Achieve Full Compliance	October 1, 1980	October 15, 1980

   b. The discharger shall comply with all other effluent and receiving water limitations, prohibitions, and provisions of this Order upon commencement of discharge operations.

3. If the discharger elects to document compliance with the coliform receiving water limitation exclusively in the effluent and so notifies the Board, in writing, the frequency of receiving water coliform monitoring will be reduced accordingly; PROVIDED, HOWEVER, that if such election is made, a violation of the coliform requirement in the effluent shall constitute a violation of the coliform receiving water limitation.

4. The discharger shall submit to the Executive Officer a contingency plan for the continuous operation of facilities for the collection, treatment and disposal of waste pursuant to Regional Board Resolution No. 74-10 by November 1, 1978.

5. The discharger shall, by the 15th of each month, submit a report satisfactory to the Executive Officer on daily and monthly discharge rates, number of building permits outstanding, number of building permits issued, and number of connections made.

6. The discharger shall comply with the attached Self-Monitoring Program as ordered by the Executive Officer.

7. The discharger shall comply with all items of the attached "Standard Provisions, Reporting Requirements and Definitions."

8. This Order expires September 1, 1981. The discharger must file a report of waste discharge in accordance with Title 23, Chapter 3, Subchapter 9, of the California Administrative Code not later than 180 days in advance of such expiration date as application for issuance of new waste discharge requirements.

9. This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Federal Water Pollution Control Act or amendments thereto, and shall become effective 10 days after date of its adoption provided the Regional Administrator, Environmental Protection Agency, has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

I, Fred H. Dierker, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on October 17, 1978.

FRED H. DIERKER
Executive Officer

Attachment:
Reporting Requirements, Standard
Provisions, and Definitions dated April 1977

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM
FOR

City of Redwood City and

South Bayside System Authority

San Mateo County

NPDES NO. CA 0038571

ORDER NO. 78-90

CONSISTS OF

PART A

AND

PART B

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. INTAKE

Station	Description
A-001	At any point in the influent pipeline at which all waste tributary to the pond system is present and preceding any phase of treatment.

B. EFFLUENT

Station	Description
E-001	At any point in the effluent pipeline between the point of discharge into the combined outfall and the point at which all tributary wastes are present.
E-001-D	At any point in the disinfection facilities for Waste E-001, at which point adequate contact with the disinfectant is assured. (May be the same as E-001)

C. RECEIVING WATER

All C Stations shall be sampled during the period 1 hour preceding to 1 hour following low slack water. During the period preceding low slack water, samples will be collected commencing at the geometric center of the diffuser and at 100 yds, 200 yds, 300 yds, 500 yds and 1000 yds along a bearing of 325° True N from the geometric center of the diffuser. During the period following low slack water, samples will be collected commencing at the geometric center of the diffuser and at 100 yards, 200 yds, 300 yds, 500 yds and 1000 yds along a bearing of 145° True N from the geometric center of the diffuser.

Station	Description
C-R	At a point in San Francisco Bay, located in the main ship channel not closer than 3,000 feet easterly of the geometric center of the outfall.
C-1	At a point 100 yards from the geometric center of the outfall diffuser bearing 325 degrees True North.
C-2	At a point 200 yards from the geometric center of the outfall diffuser bearing 325 degrees True North.

Station	Description
C-3	At a point of 300 yards from the geometric center of the outfall diffuser bearing 325 degrees True North.
C-4	At a point 500 yards from the geometric center of the outfall diffuser bearing 325 degrees True North.
C-5	At a point 1000 yards from the geometric center of the outfall diffuser bearing 325 degrees True North.
C-6	At a point 100 yards from the geometric center of the outfall diffuser bearing 145 degrees True North.
C-7	At a point 200 yards from the geometric center of the outfall diffuser bearing 145 degrees True North.
C-8	At a point 300 yards from the geometric center of the outfall diffuser bearing 145 degrees True North.
C-9	At a point 500 yards from the geometric center of the outfall diffuser bearing 145 degrees True North.
C-10	At a point 1000 yards from the geometric center of the outfall diffuser bearing 145 degrees True North.
C-11	At a point at the geometric center of the outfall diffuser.

D. LAND OBSERVATIONS

Station	Description
S-1 thru S-4	Located along the perimeter levees at the corners of the main pond.

E. OVERFLOWS AND BYPASSES

Station	Description
O-1 thru O-"n"	Bypass or overflows from manholes, pump stations or collections system.

Note: Initial SMP report to include map and description of each known bypass or overflow location.

Reporting - Shall be submitted monthly and include date, time and period of each overflow or bypass.

II. SCHEDULE OF SAMPLING AND ANALYSIS

A. The schedule of sampling and analysis shall be that given as Table I.

III. MODIFICATION OF PART "A" DATED 7/74

A. Exclusions: Paragraphs C.1, C.3, C.4, C.5.c, D.1, D.2.a, D.3.a, and F.

I, Fred H. Dierker, Executive Officer, do hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 78-90.

2. Has been ordered by the Executive Officer on October 17, 1978 and becomes effective upon commencement of discharge operations.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger and revisions will be ordered by the Executive Officer.

FRED H. DIERKER
Executive Officer

Attachments:
Table I and Legend for Table

TABLE I

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	A-001		E-001 & E-001-D			All C Sta.	All S Sta.						
TYPE OF SAMPLE	G	C-24	G	C-24	Cont	G	O						
Flow Rate (mgd)		D	D										
BOD, 5-day, 20° C, or COD (mg/l & kg/day)	W			W 3									
Chlorine Residual & Dosage (mg/l & kg/day)			E 4/										
Settleable Matter (ml/1-hr. & cu. ft./day)													
Total Suspended Matter (mg/l & kg/day)	W		W										
Oil & Grease (mg/l & kg/day)													
Coliform (Total) (MPN/100 ml) per req't			W			2/M							
Fish Toxicity, 96-hr. TL_{50} % Survival in undiluted waste			M										
Ammonia Nitrogen (mg/l & kg/day)						3M							
Nitrate Nitrogen (mg/l & kg/day)						3M							
Nitrite Nitrogen (mg/l & kg/day)													
Total Organic Nitrogen (mg/l & kg/day)													
Total Phosphate (mg/l & kg/day)													
Turbidity (Jackson Turbidity Units)			W			2 M							
pH (units) 1/			W			2 M							
Dissolved Oxygen (mg/l and % Saturation) 2/						2 M							
Temperature (°C)						2 M							
Apparent Color (color units)						2 M							
Secchi Disc (inches)						2 M							
Sulfides (if DO ≤ 5.0 mg/l) Total & Dissolved (mg/l)						2 M							
Arsenic (mg/l & kg/day)			2/Y										
Cadmium (mg/l & kg/day)			2/Y										
Chromium, Total (mg/l & kg/day)			2/Y										
Copper (mg/l & kg/day)			2/Y										
Cyanide (mg/l & kg/day)			2/Y										
Silver (mg/l & kg/day			2/Y										
Lead (mg/l & kg/day)			2/Y										

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TABLE I (continued)
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	A-001		E-001 & E-001-D			All $_{C}$ Sta.	All $_{S}$ Sta.						
TYPE OF SAMPLE	G	C-24	G	C-24	Cont	G	O						
Mercury (mg/l & kg/day)			2/Y										
Nickel (mg/l & kg/day)			2/Y										
Zinc (mg/l & kg/day)			2/Y										
PHENOLIC COMPOUNDS (mg/l & kg/day)			2/Y										
All Applicable Standard Observations			W			2/M	W						
Bottom Sediment Analyses and Observations													
Total Identifiable Chlorinated Hydrocarbons (mg/l & kg/day)			2/Y										
Non-dissociated Ammonium Hydroxide as N (mg/l)						2/M							

LEGEND FOR TABLE

TYPES OF SAMPLES

G = grab sample
C-24 = composite sample - 24-hour
C-X = composite sample - X hours (used when discharge does not continue for 24-hour period)
Cont = continuous sampling
DI = depth-integrated sample
BS = bottom sediment sample
O = observation

TYPES OF STATIONS

I = intake and/or water supply stations
A = treatment facility influent stations
E = waste effluent stations
C = receiving water stations
P = treatment facilities perimeter stations
L = basin and/or pond levee stations
B = bottom sediment stations
G = groundwater stations

FREQUENCY OF SAMPLING

E = each occurence
H = once each hour
D = once each day
W = once each week
M = once each month
Y = once each year

2/H = twice per hour
2/W = 2 days per week
5/W = 5 days per week
2/M = 2 days per month
2/Y = once in March and once in September
Q = quarterly, once in March, June, Sept. and December

2H = every 2 hours
2D = every 2 days
2W = every 2 weeks
3M = every 3 months
Cont = continuous
2M = every 2 months

FOOTNOTES FOR TABLE I

1. A representative sample of the discharge of wastewater from the combined outfall into the Bay may be made up as a flow-weighted sample of the effluent discharged into the combined outfall from the Cities of San Carlos/Belmont and Redwood City, and the Redwood Shores.

2. Whenever the Dissolved Oxygen concentration exceeds 100% saturation, both surface and bottom samples shall be taken at sunrise the following day.

3. Composite sample to be made up of three representative grab samples taken during a discharge cycle at approximately equal intervals during a 24 hours period.

4. Prior to the start of any discharge cycle the wastewater shall be tested for chlorine residual.